3. Market Structure and Competition

Proposed Objectives

The objective of Guyana's licensing policy should be to promote the widest possible development and availability of ICT services throughout the country. This objective is discussed further below, under the heading "Licensing Policy".

ICT services, including all basic telecommunications services should be provided in an open, market-oriented environment, that authorizes a range of private sector companies to develop the ICT sector in response to market demand. Accordingly, it should be the objective of Guyana to develop a fully competitive market for all telecommunications and ICT services, both domestic and international.

On the other hand, the legal rights of GT&T and ATN should be recognized and respected. They should be reflected in the new Guyana national telecom strategy, or better, renegotiated before the licensing policy is finalized. It should be the Government's objective to negotiate a fair and reasonable early termination to the exclusivity rights granted to ATN in the Purchase Agreement, and to GT&T in its licence. This matter is discussed further under the heading Options for Reform.

Current Situation

Guyana took its first major step on the road to reforming the structure of its telecommunications sector in 1990, when it entered into the Purchase Agreement to privatize GT&T. Guyana moved earlier on privatization than most of its neighbours in South and Central America, and many countries in the rest of the world.

The Purchase Agreement

The essence of the deal set out in the Purchase Agreement was not unusual for the time. The private sector investor agreed to undertake a plan to expand and improve service in the country. At that time, telecommunications service levels in Guyana were among the worst in the Americas region. Guyana also received a payment of US $16.5 million, as well as an assumption of $15.8 million in GT&T debt. Guyana also retained 20% of the shares of GT&T, on which it would be entitled to receive dividends.

For its part, the investor received a commitment that GT&T would be subject to regulation by an independent regulatory authority, and that GT&T would be entitled to a minimum rate of return of 15% on capital dedicated to public use. GT&T was also granted a monopoly of varying periods, up to 40 years on a broad range of telecommunications services, including 'national and international voice and data transmission'.

In some regards, the deal was not unusual for the times, and it appears that the parties considered it necessary to attract an investor, given the poor sector performance and high country risk in Guyana at the time. The term of the GT&T monopoly was rather long, but older telephone concessions had also been lengthy. The norm in the Caribbean had been 20 years. However, the trend soon changed. Monopolies granted in subsequent Latin American privatizations generally ranged from 5-7 years, and more recently even shorter monopolies were granted.

The Purchase Agreement's inclusion of rate of return regulation was notable, since most of the world, including the US, was shifting to incentive price regulation at the time. For example, when Mexico privatized its national carrier, Telmex, around the same time, incentive regulation was adopted. Other aspects of rate of return regulation are discussed under the heading Price Regulation and Consumer Protection.

End of the Era of Telecommunications Monopolies

Since that time, the telecommunications industry has evolved rapidly from one characterized by monopolies to a highly competitive industry in a very short period of time. The extent of the movement away from monopolies in the global telecommunications sector is documented earlier in this Paper, under the heading Changes in the Telecom Sector.

Today, Guyana stands out as having one of the longest-term legal telecommunications monopolies granted to a private operator, anywhere in the world. Until recently, the Caribbean region was an exception to the trend of ending telecommunications monopolies, in that it had maintained monopolies granted to various subsidiaries of Cable and Wireless plc. However, that too has changed.

A number of the countries in the Caribbean region, and in the Americas generally have recently negotiated an early end to previously granted telecommunications monopolies. These countries include:

- Most recently, the Organization of Eastern Caribbean States (Dominica, Grenada, St Kitts and Nevis, Saint Lucia, St. Vincent and the Grenadines) which negotiated an early termination to the monopoly of various subsidiaries of Cable and Wireless PLC (C&W) on April 7, 2001.
- Jamaica, which had negotiated a termination of the C&W monopoly in 1999.
- Trinidad, where the C&W monopoly was terminated in 2000.
- A number of Latin American countries, including Peru, Argentina and Ecuador, which negotiated early terminations of their telecommunications monopolies over the last two years.
- In addition, in Guyana's western neighbour, Venezuela, the term of the CANTV telecommunications monopoly has expired.
- In Barbados, the Government's telecommunications sector Green Paper calls for the end of all national and international telecommunications monopolies by the end of 2002.

Telecommunications Competition in Guyana

The Purchase Agreement does not grant GT&T a monopoly over all telecommunications services in Guyana. As part of a move to reform the telecommunications sector, the Government has begun to authorize other service providers, particularly in the cellular mobile and ISP markets.

In addition to GT&T, cellular licences have been issued to three cellular telecommunications operators. These licences are for national coverage. They have been granted on a non-exclusive (i.e. competitive) basis. Therefore, four cellular operators have now been authorized to operate in Guyana.

Cellular Licensees

(1) **GT&T**

- authorized to provide cellular radio telephone service in the main GT&T licence issued December 19, 1990.
- operates a TDMA service in cellular band B in the 800 MHz range. GT&T is considering implementation of a GSM service
- principal investors: 80% ATN (of which Mr. Cornelius Prior owns 60%) and 20% Government of Guyana

(2) **Caribbean Telecommunications Limited**

- licence issued April 23, 1996
- operates a CDMA service in the Berbice area, licensed for cellular sub-band A
- principal investor: Mr. Lloyd Soobrian

(3) **Caribbean Wireless Telecom, LLC.**

- licence issued April 19, 2000
- licensed for PCS band C
- various point-to-point frequencies (3.8 to 11.6 GHz) also reserved in licence
- principal investor: Mr. Earl Singh

(4) **Cel*Star Guyana Inc.**

- licence issued February 21, 2001
- licensed to provide a GSM 900 MHz service
- principal investors: Demerara Distillers Limited and Cel*Star Caribbean/Blue Sky Communications

State of the Cellular Market

GT&T launched its TDMA cellular service in 1997. GT&T's cellular rates were decreased in early 2001, and an optional Calling Party Pays pricing approach was adopted. These two changes led to a substantial increase in subscriber penetration. GT&T currently has over 20,000 subscribers.

To date, no significant competition has developed in the Guyanese cellular telecommunications market. It is reported that Caribbean Telecommunications Limited has around 100 subscribers in the Berbice region, but neither of the other operators have launched its cellular services.

There appear to be a number of reasons for the slow development of competition in the cellular market, including regulatory uncertainty and lack of financing on the part of competitors.

The absence of a clear regulatory framework appears to be a factor behind the lack of competition in the cellular market. The cellular competitors have stated that the regulatory uncertainty has affected their ability to finance their service roll-outs. An interconnection order granted by the PUC earlier this year has, like many PUC proceedings, been subject to litigation, and its current status is unclear. The existing PC decision on interconnection (Decisions 4 of 1997) does not cover many of the issues normally found in the regulatory framework for interconnection.

As in most countries, the establishment of clear interconnection arrangements is a pre-requisite for the development of effective cellular competition in Guyana.

ISP Services

GT&T provides a wholesale Internet service, and the Government has authorized the establishment of a number of Internet Service Providers (ISPs) that provide a retail service to end users. The ISPs include:

- Solutions 2000
- Guyana Net
- InterNetworks
- Future Net
- The UNDP-sponsored Sustainable Development Networking Program (SDNP)

A number of other ISPs are in the process of starting up their services.

Other Services

Consistent with the monopolies granted in the Purchase Agreement, there has been relatively little other telecommunications competition in Guyana to date. Competition is permitted in the markets for customer premises equipment (i.e. telephone sets and other terminal equipment) and inside wiring. Indeed, GT&T actively encourages such competition. It is eager to exit the inside wiring business, for which the PUC has approved very low rates.

The Government has announced a policy of licensing non-interconnected very-small aperture terminal (VSAT) operators to provide international connectivity to call centres. In this regard, the policy is similar to the policy recently adopted as part of the OECS agreement with Cable & Wireless to phase out that company's monopoly.

In addition, there appears to be some level of competition to GT&T's international telephone services from Voice Over Internet Protocol (VOIP) services. The extent of such competition is not clear. VOIP competition exists around the world, despite regulatory and other prohibitions.

Regulatory prohibitions against VOIP services are generally aimed at major suppliers of such services that effectively act as competing international telephone operators by routing calls that originate or terminate on telephones. Less effort is usually expended on, or concern expressed about, individual users with home or office computers equipped with microphones that use Internet-based VOIP capabilities.

GT&T has indicated that VOIP services should be treated as a form of international voice competition. The company has requested that the Government take action to prevent certain forms of VOIP competition, as prohibited under the Purchase Agreement and the GT&T licence.

Finally, it appears that at least one ISP is providing Internet services via a VSAT link that bypasses GT&T's network. The licensing status of this service provider is unclear.

No other competitive services have been licensed to date in GT&T's core markets, that is the markets for basic international, long-distance and local access telecommunications services.

Options for Reform

Initiatives to bring about competition in Guyana's telecommunications markets are at the heart of the Government's efforts to reform the sector. There is no one right way to implement these reforms, and there are countless options for doing so. There have been various efforts, on the part of the Government and GT&T-ATN to develop workable options, but these have not succeeded to date.

In order to advance the discussion expeditiously the Advisor has therefore set out a fairly comprehensive 'Preferred Option' for reform in the areas related to market structure and licensing. The various parts of the preferred option are interrelated, and have been selected to provide a balanced option, consistent with international best practices. This approach, of tabling a single preferred option for discussion, seems preferable to submitting a shopping list of specifics, which may be mixed in an unrelated fashion. The single preferred option approach also reduces the complexity, and helps to focus the discussion.

Variations and alternatives to the Preferred Option are set out under the heading 'Variations and Alternative Options'. Parties are invited to comment on both the preferred option and the variations and alternatives.

Option A (Preferred Option)

It is proposed that telecommunications markets in Guyana be opened to competition in accordance with a "Three-Phase Liberalization Plan" that is consistent with good economic principles and international practice.

The essence of the proposed Plan is similar to that agreed to by Cable and Wireless in its April 7, 2001 Agreement with the OECS. However there are some differences, to take into account the different legal and regulatory environment in Guyana, including the term of the Purchase Agreement and the GT&T licence.

Phase 1 -- Preparation for Competition

[July 2001 – December 31, 2001]

1. Completion and approval by the Government of the National Telecommunications Policy. The policy will be based on this Discussion Paper. It will be developed in consultation with the public, and industry, including GT&T.

2. Development and implementation of a 'Rate-Rebalancing Plan' to align local rates more closely to costs, taking into account benchmark rates for similar countries (see discussion under the heading "Rate Rebalancing").

3. Initiate drafting of Legislation and Regulations to implement the National Telecommunications Policy. Regulations to deal with the following issues are discussed elsewhere in this Paper:

    - Licensing
    - Interconnection
    - Universal Service

4. Licensing continues for services not subject to GT&T's monopoly (e.g. cellular operators) and for limited other services including:

        - ISPs
        - Domestic Resale (that use the networks of licensed operators, including GT&T, cellular providers, and ISPs)
        - International Simple Resale
        - Private telecommunications networks
        - Call centres and similar offshore ICT support facilities that use VSATs or other international circuits that are not interconnected to the GT&T switched network
        - Value-added services, including information service providers

5. Negotiations between the Government and GT&T with a view to resolving outstanding policy issues, including those set out in this Paper, as well as outstanding shareholder, tax and litigation issues.

Phase 2 – Implementation of New Regulatory Framework

[2002]

1. Approval of Rate Rebalancing Plan by Government. Commencement of Implementation.

2. Passage of Reform Legislation and implementation of Regulations on:

   - Licensing (includes implementation of licensing process, subject to the services reserved to Phase 3)

   - Interconnection (includes implementation of mandatory interconnection rules to benefit cellular operators, ISPs and other presently licensed operators)

   - Universal Service (includes design of Universal Service Fund)

3. Licensing commences for competitive domestic services. Licences issued to operate facilities used to provide local and long distance voice and data services.

4. Basic anti-competitive safeguards will be incorporated in the regulatory regime. The Telecommunications legislation and regulations will establish a transitional form of 'asymetric regulation' of dominant operators. New entrants will be subject to little or no regulation. The purpose of the anti-competitive safeguards will be to ensure that dominant operators do not abuse their market power in a manner that significantly undermines long-term prospects for competition in the sector. Such safeguards may include:

   - Requirements for accounting or structural separation of competitive activities carried on by dominant operators (e.g. cellular services, ISP operations) from their activities in markets where they remain dominant

   - Safeguards against 'vertical price squeezing' by dominant operators that provide wholesale services to retail competitors, and

   - Cross-ownership restrictions that prevent mergers or acquisitions of competitors, at least in circumstances that would eliminate or significantly reduce competition.

Phase 3 – Introduction of Full Competition

[On or before December 31, 2002]

1. Rate base/rate of return regulation of GT&T replaced with price cap incentive regulation for services in which GT&T is the dominant operator.

2. GT&T prices deregulated in markets where it is not the dominant operator, subject to maintenance of anti-competitive safeguards.

3. Issuance of international licences commences – i.e. licences to operate all types of facilities used to provide international voice telephony and data services and to offer all types of international voice and data services (including satellite earth stations, international cable and radio systems, including submarine cables and IRUs)

4. Universal Service Program implemented. Universal Access Fund established and operational.

Variations and Alternative Options

Virtually all of the elements of the preferred option can be varied. One option would include extending the transition period for implementation of full competition further into the future. Another would be delaying the introduction of rate rebalancing, in order to ease the impact on consumers. These and other options will affect the balance of costs and benefits to the Government and to GT&T that has been developed in the preferred option.

Comments and alternative proposals are welcome on all variations and other options.

5. Licensing and Scarce Resources

a. Licensing Policy

Proposed Objectives

The objective of Guyana's licensing policy should be to promote the widest possible development and availability of ICT services throughout the country. These services should be provided in an open, market-oriented environment. The licensing regime should allow a wide range of private sector companies the maximum flexibility to develop the ICT sector in response to market demand.

In addition, the licensing policy should facilitate the provision of non-economic services to meet public need as financed by Government or international development resources (see discussion under the heading Universal Service).

The foregoing objectives will be best met by a licensing policy that will develop a fully competitive market for all telecommunications and ICT services, both domestic and international. As indicated in the previous section, Market Structure and Competition, the legal rights of GT&T and ATN should be recognized in or renegotiated as part of the licensing policy.

Once markets are opened to competition, it should be the policy of the Government, and the role of the regulator to reduce or eliminate all barriers to market entry. It should be the Government's policy to allow market forces and technology developments to determine the most effective means of providing services to end-users. The primary role of the Government, through the regulator, should be to facilitate fair and effective competition in all market segments.

The telecommunications market structure in Guyana should evolve toward a technologically neutral, open and convergent status. This approach is consistent with market and technological forces in the global telecommunications industry. Certain distinctions may remain for purposes of licensing, regulation, and competition policy, for example between public switched access networks and dedicated transmission networks, or for those services depending upon radio spectrum or other scarce resources. However, the objective of Government policy, should be to remove artificial technology and service barriers, and to encourage the forces of convergence and market innovation.

Finally, licensing should be carried out in an open, transparent and non-discriminatory fashion. Not only the licensing process, but also other aspects of the regulatory and fiscal framework for the telecommunications sector should treat licensees in a fair and equitable manner. During the transition to competition, it is common to introduce some degree of asymmetric regulation, to limit potential abuses of market power by dominant operators. However, such asymmetric regulation must be seen as transitional, and should be removed as soon as markets are workably competitive.

Current Situation

The current licensing policy of Guyana is set out in various laws, and particularly in Part II of the Telecommunications Act. Section 7 of this Part empowers the Minister to grant telecommunications licences after consultation with the Director, who was to have been appointed under the Telecommunications Act. Section 7 also empowers the Director to grant licences in accordance with a general authorization given by the Minister, or with the consent of the Minister. As previously indicated, the position of Director under the Telecommunications Act has never been filled.

More significantly, both types of licensing activities are constrained by the provisions of the Purchase Agreement and the GT&T licence, which grant extensive exclusivity rights to GT&T. The drafting of those exclusivity rights is not entirely clear, and there is some inconsistency between the Purchase Agreement and the GT&T licence. The extent of the constraints on the Minister to issue licences, and on the conditions of those licences, has been subject to considerable discussion and dispute. It needs to be clarified.

The current licensing regime is also unclear in a number of other respects. One is the distinction between licensing of facilities and services. The licensing approach established under the Telecommunications Act is based on the British concept of licensing "the running of telecommunications systems." This is different from the concept of licensing or regulating services, which is found in the Purchase Agreement and the PUC Act. This distinction has also led to discussion and dispute about the extent of GT&T's licence rights and those of others.

Finally, it is noted that fiscal incentives have been provided by the Government's national investment agency to some operators, and not others. Recently, one cellular licensee was granted a 5 year 'tax holiday', during which corporate income taxes will not be levied. Other licensees have raised questions about this incentive. It is not clear whether a similar incentive will be provided to other licensees. Investment incentives can certainly benefit development in the telecommunications sector, but they should generally be applied in a fair and consistent manner across the industry, and in consultation between Government agencies responsible for fiscal and telecommunications policy.

Options for Reform

The most controversial reform of the licensing regime in Guyana relates to the rights of GT&T and ATN, and the policy of the Government to license competitive service providers. Those aspects are generally discussed in the previous section, under the heading Market Structure and Competition. As indicated in that section, a three-phase transition is proposed for the move to a fully open licensing regime.

This section sets out a single 'Preferred Option' for the development of a licensing regime that is consistent with best practices in licensing telecommunications services around the world.

Preferred Option

The licensing process set out in the current Telecommunications Act would be revised. This should be done as part of the legislative reform process (see Section 2, under the heading National Policy and Legal Framework). It is proposed that the new licensing process should incorporate the following features:

1. **Two Types of Authorizations** - In order to encourage maximum participation in the sector, the process for authorizing new telecommunications services will be simple, open, non-discriminatory, transparent and light handed. There will be two types of authorizations to provide telecommunication services and to establish and operate telecommunications networks:

   (i) Individual licences for networks and services that require access to radio spectrum or other scarce resources and with more comprehensive rights and obligations attached to them. Until development of a reasonably competitive telecommunications sector, it is proposed that the following activities will require individual licences:

   - Operation of physical telecommunications network facilities that are used to provide local, long distance and international voice telephony services or other telecommunications services that are interconnected with the public switched telecommunications network operated by GT&T
   - Local, long distance or international voice telecommunications services provided to the public in real time
   - Any services provided to the public that require the use of the radio spectrum in Guyana, including cellular telecommunications services, paging, trunking services

   (ii) General authorizations ("class licences") for networks and services which do not require access to radio spectrum or other scarce resources and that carry a limited number of rights or obligations. It is proposed that these will include:

   - ISPs
   - Resellers
   - Private telecommunications networks that are used only for internal communications purposes of a business, Government, NGO or other organization
   - Value-added service providers, including information service providers
   - Any other services that do not require an individual licence
   - Over time, the National Telecommunications Policy may be amended to permit other types of services to be provided under a general authorization.

2. **Conditions of Individual Licences** will be determined by the Licensing Authority (see discussion under heading 'The National Regulatory Authority'. The following principles shall apply to conditions of licences:

    - Licences for the same types of services will have the same conditions.
    - Conditions may include:
        - requirements related to the effective and efficient use of scarce resources such as radio spectrum, numbers and rights-of-way
        - obligations related to universal service, including an obligation to pay a proportionate share of industry-wide funding for a Universal Service Fund
        - obligation to maintain network integrity, interoperability of services, data protection, and avoidance of harmful interference
        - obligations related to consumer protection (such as billing, disputes settlement, change of access, tariffs, and other conditions)
        - obligations to provide customer data base information for a general directory maintained by GT&T or some third party
        - provision of emergency services
        - special arrangements for disabled persons
        - obligation to provide certain information to regulator for regulatory and statistical purposes
    - The conditions of licence will include (directly or by reference to regulations) special obligations on licensees that are, or become dominant in their markets, including:
        - measures to prevent anti-competitive behaviour
        - obligation to provide leased lines

3. **General Authorizations** will, by definition, not require the issuance of a specific licence. The terms of the general authorizations will establish the conditions for provision of each type of service (e.g. ISPs, resellers, etc.).

    - The conditions of general authorizations will be published and available to all.
    - Any person that complies with the conditions of a general authorization may commence offering services upon filing a registration.

- Registrations to provide services under a general authorization shall include names, addresses, service description and other information required by the conditions of the general authorization.

- A registration may be revoked for breach of the conditions of a general authorization.

4. **Number of Licences** - There will generally be no pre-determined limitation on the number of individual licences issued except in the case where the use of radio spectrum or other scarce resources is required by the licensee.

5. **Number of Registrations**- There will be no limit on the number of registrations that may be filed under General Authorizations.

6. **Publication of Licences** - All terms and conditions of all licences shall be published immediately upon issuance. The full text of all individual licences, general authorizations and registrations shall be maintained in a national telecommunications registry. The contents of the registry shall be made available electronically, when funding permits.

7. **Licence Fees** - Licence fees will be established and applied to all licensees and registrants on a non-discriminatory basis. The following guidelines shall apply to fees:

   - All fees will be published.

   - The level of the fees will be reasonable in relation to the cost of administration and regulation of the licensed services.

   - Fees shall be paid by all individual licensees and registrants.

   - In the case of individual licensees, the level of fees will be based on a percentage of the gross revenues from licensed services, net of inter-carrier payments such as interconnection and termination charges.

   - In the case of registrants under general authorizations, a lower flat fee will be established based on the lower cost of maintaining the registry for the general authorization regime.

8. **Licensing Authority** - Licences would be issued, amended and revoked by the Minister responsible for Communications, or the Regulator (see discussion above under the heading The National Regulatory Authority). In either case, licences would be issued in a manner consistent with the National Telecommunications Policy.

b. Licensing & Regulation of Scarce Resources

Proposed Objectives

The development of the telecommunications sector requires regulation of certain scarce resources. The most important is the radio frequency spectrum. The provision of many telecommunications services is dependent on orderly allocation and management of the radio spectrum. This management function is usually performed by a regulatory authority, although in some cases, it has been outsourced to a commercial third party.

In any event, the orderly allocation and management of the radio spectrum should be an objective of the national telecommunications policy.

Policy and regulatory issues also arise in relation to other scarce resources, such as rights of way. Without access to rights of way over public and private property, neither the incumbent operator or new entrants will be able to construct certain types of facilities, including fibre optic cables and local wireline distribution facilities. Regulatory intervention is sometimes required to ensure the availability of such scarce resources.

The World Trade Organization's 1997 Agreement on Basic Telecommunications includes a generally accepted policy objective for the regulation of scarce resources. The Reference Paper on regulation, which formed part of that Agreement states:

> Any procedures for the allocation and use of scarce resources, including frequencies, numbers and rights of way, will be carried out in an objective, timely, transparent and non-discriminatory manner. The current state of allocated frequency bands will be made publicly available, but detailed identification of frequencies allocated for specific government uses is not required.

Current Situation

The radio spectrum in Guyana is managed by the National Frequency Management Unit (NFMU). The NFMU was established under the *Guyana Frequency Management Unit Order 1990*, made under *The Public Corporations Act*. As part of the process of privatization of GT&T, the NFMU took over the radio spectrum management responsibilities performed prior to 30 September 1990 by the Frequency Management Unit of GT&T's predecessor, the Guyana Telecommunications Corporation.

The NFMU has broad powers to manage the radio frequency spectrum, to establish frequency allocations, to assign radio frequencies and authorize radio communications. In this capacity, the NFMU has issued licences to cellular operators and other users of the radio spectrum in Guyana.

The regulatory situation governing other scarce resources has not been well developed.

Options for Reform

The major issues related to scarce resources concern allocation of the radio-frequency spectrum. In general, allocation of spectrum for most telecommunications purposes is non-controversial. ITU regulations and practices, as well as regional agreements determine the frequency bands normally allocated to most types of telecommunications services. In countries such as Guyana, it is unlikely that there will be more demand than supply of spectrum in many of these bands.

In reality, there is no scarcity in the case of much of the radio spectrum in countries such as Guyana, today. The main concerns related to management of the radio spectrum in these cases include orderly assignment of spectrum, ensuring optimal use of available spectrum, preventing 'spectrum squatting' and preventing interference among spectrum users.

Policy issues do arise in the case of scarce spectrum, such as the spectrum allocated for cellular mobile services.

The following options are available for the allocation of scarce spectrum:

Option 1

'First Come, First Served' – Spectrum is assigned sequentially to applicants in the order they apply for it, provided their proposed use of the spectrum is consistent with ITU and national spectrum allocations. This approach has been used for the assignment of most spectrum in Guyana to date. The approach is generally efficient and neutral in its treatment of applicants.

Option 2

Comparative Evaluation Process – Spectrum is awarded in a competitive process, based on proposals made by different applicants for the use of the spectrum. Typically, competing applicants will propose public 'benefits', such as faster coverage and more advanced services, in order to 'win' the contest and obtain the scarce spectrum.

While comparative evaluation processes can lead to additional public benefits, they are notoriously subjective in nature, and subject to abuse. Efforts are often made to establish 'objective' evaluation criteria, but this can be difficult and can constrain market flexibility and innovation. It is often difficult to select the best applicant from among competitors, and, regardless of efforts that may be made to ensure transparency, there are usually suspicions about unfairness to losing applicants. Comparative evaluation processes are not necessary or useful where there is little demand for a block of spectrum.

Option 3

Auctions– Spectrum can be awarded by auction to the highest bidder for a particular block of spectrum. Auctions usually include a pre-qualification stage, to ensure financial capability of bidders, proper use of the spectrum, or other criteria are met.

Auctions were more popular in the telecommunications sector until a very expensive round of 3rd Generation Cellular spectrum auctions in Europe in 2000-2001. Since then, many commentators and financial analysts have pointed out that payment of large sums of money to governments through auctions can come at the expense of sector development. Consumers will normally have to pay the cost of spectrum auctions in future telecommunications service prices, and operators that pay too much for spectrum may be financially crippled. Auctions are less useful or appropriate where there is little demand for a block of spectrum.

Option 4

Lotteries – Spectrum can also be awarded by lottery. Lotteries should include a pre-qualification stage, to ensure financial capability of applicants, proper use of the spectrum, or other criteria are met. The names of qualified applicants are then drawn by lot, and the winners receive spectrum assignments.

Other Issues Involving Scarce Resources

A number of other issues arise in relation to other types of scarce resources. These issues and some of the options for dealing with them are summarized briefly below.

- **Public Rights of Way** – In many countries, all licensed telecommunications operators, or operators of specified types, are authorized by law to enter upon and use public property, such as road allowances, sidewalks, public land reserves, etc. Operators may generally do so for the purposes of constructing and maintaining telecommunications facilities. In some cases, fees must be paid to public authorities (national and local) for the use of public lands. However, such fees are often limited to an amount sufficient to cover the administrative costs of the public authority. Higher fees can discourage development of national telecommunications infrastructure.

- **Access to Private Property** – In most cases, telecommunications operators are able to negotiate access to private property on mutually acceptable terms. Property owners often benefit from the placement of telecommunications cables, wires, poles or towers on their property, through improved telecommunications service. However, in some cases, access agreements cannot be negotiated. National telecommunications legislation or expropriation legislation in many countries provides a means for settling such disputes, normally through payment of market-based rates determined by an independent authority. In most cases there is no need to resort to such legislation, since there is usually more than one route available for telecommunications infrastructure.

- **Telecommunications Numbers** – Numbers are usually not a truly 'scarce' resource, in that digits can be added to provide additional numbers. However certain blocks of numbers are more valuable than others, and development of competitive telecommunications markets normally requires some regulatory intervention in the allocation of numbers. In particular, it is often important to ensure that it is no more difficult for customers to dial calls using the services of new entrants in a market than using those of the incumbent operator.

- **Enabling Wireline Competition** – New entrants in telecommunications markets, and especially in wireline telecommunications markets, require effective and timely access to scarce resources, such as public and privately-owned rights of way, in order to roll out their networks. In some cases, the most effective means of access involves the sharing of rights of

way and other infrastructure, including towers, poles and conduits with the incumbent operator. In other cases, it is more appropriate to develop alternative infrastructure. The policy and legal framework respecting scarce resources should be reviewed in order to ensure that they enable the development of wireline as well as wireless competition.

Comments are invited on the policies that should be adopted by the Government of Guyana in relation to these issues, or any others involving scarce resources. Comments are also welcome on the applicability and suitability of the existing legal framework in dealing with these issues.

5. Price Regulation and Consumer Protection

Proposed Objectives

The objective of price regulation is to replicate conditions of an effectively competitive market.

Price regulation should be limited to protecting the public and competitors from harm due to the abuse of market power by dominant operators.

Market forces will ensure that an operator does not set prices at excessively high or low prices. If they are too high, the operator will lose customers to competitors. If they are too low, the operator will go out of business.

However, where an operator is dominant in a relevant market, it can exercise market power. A dominant operator for example can set prices at excessively high prices, and consumers may have no choice but to pay them or do without services that may be essential. Similarly, a dominant operator in one market may set prices well above costs in that market and use the profits to subsidize rates in adjacent competitive markets. The object of such can be to injure or bankrupt new entrants in the competitive market.

Based on these objectives, it can be seen that price regulation is only required in markets where there is a dominant operator. Then, only the prices of that dominant operator should be regulated. Prices of new entrants and other non-dominant operators need not be regulated. As soon as an operator becomes non-dominant in a market, its prices can be deregulated.

Prices of a dominant operator should be regulated in a manner that replicates market forces. In this regard, price cap regulation provides much better incentives for efficient behaviour than rate base / rate of return regulation.

Last, but not least, it should be the goal of price regulation to ensure that the prices of incumbent operators are reasonably cost-based. If rates for some services, such as local services, are priced below costs, several problems occur. First, the incumbent will have to find another source of revenues, such as international services to subsidize the local services. This requires international services to be priced above costs, providing a disincentive to use of such services and acting as a barrier to international connectivity. Second, there will be a disincentive to expand local services. Neither the incumbent, nor any competitors, will have an incentive to invest in expanding local services, if these services are provided below cost. Thus, below-cost pricing can seriously hamper local network expansion.

Accordingly it is an objective of telecommunications policies in most countries to ensure that costs of local, long distance and international services are reasonably cost-based. Where this is not the case, the objective should be to rebalance rates, to bring them closer to costs.

Current Situation

Guyana's local service rates appear to be among the lowest, if not the lowest, in the Americas region. Local rate surveys, including local usage charges for similar customers and monthly subscription rates are set out in Annex 2. These comparisons indicate that Guyana's rates are the lowest among countries surveyed, by a large margin.

An independent economic analysis of GT&T's local network costs has not been performed. However, it appears likely that GT&T is correct in asserting that its local services are priced well below cost.

Traditionally GT&T, and many telecommunications operators in developing countries, financed local network expansion from profits earned by pricing international services (and international settlement rates) well above costs. This form of 'cross-subsidization' is coming to an end in many parts of the World, due to increasing international competition as well as the international settlements benchmark orders of the Federal Communications Commission in the US.

The US FCC decision to force a reduction in settlement rates from US$0.85 to US$0.23 by January 1st 2002 means that GT&T's net settlement revenue will be reduced significantly. The reduction in settlement rates will provide a further 'hit' to GT&T in reducing the incentive to use Guyana for so-called 'audiotext' services.

'Audiotext' services have provided a very substantial contribution to GT&T's revenues during the years 1993 to date. At their peak in 1996, GT&T reported that audiotext revenues contributed 73.37% of its revenues, and contributed US $36.16 million to profits. However, independent of the effect of settlement rate decreases, audiotext revenues have been reduced significantly in recent years. By the year 2000, the contribution made by audiotext revenues declined to 10.15% of revenues and US $1.4 million in profits. It appears that the era of significant 'audiotext' revenue contributions is over.

The pending decline in accounting rates will put further downward pressure on incoming and outgoing international call rates. With the decline in both settlement rate revenues and audiotext revenues, GT&T could experience a serious cash flow problem by early January 2002.

Since its privatization, the regulation of GT&T's prices has been very controversial. Under the Purchase Agreement, GT&T is to be subject to a form of rate base / rate of return regulation. The Purchase Agreement provides that "GT&T shall be entitled to a minimum rate of return of 15% on capital dedicated to public use." It indicates that GT&T's revenue requirement shall be calculated on a rate of return methodology to be mutually agreed to by the Government and ATN prior to the establishment of a Regulatory Body. No such agreement was reached before the Public Utilities Commission was established.

The Purchase Agreement provided that "Unless and until such mutual agreement is reached ... the revenue requirement shall be calculated on the basis of GT&T's entire property, plant and equipment pursuant to a rate of return methodology consistent with the practices and procedures of the United States of America Federal Communications Commission."

There have been significant disagreements between GT&T and the PUC on how to apply FCC rate of return practices to GT&T.

One of the most controversial points involves the payments by GT&T of a 6% advisory fee to ATN. The Purchase Agreement requires GT&T to pay ATN fees for 'management services' in foreign currency, in such amounts as the GT&T Board shall approve. A 6% 'advisory fee' was agreed to in a contract between GT&T and ATN which was submitted to the Government of Guyana around the time of closing of the privatization transaction.

It is not particularly unusual to have operating telecommunications companies pay management fees to their parent companies, and substantial management fees have been paid by other Caribbean region carriers to their holding companies or affiliates.

However, the treatment of the 6% ATN advisory fee has been unusual and highly controversial. GT&T has attempted, unsuccessfully, to include the 6% advisory fee as an allowable expense in calculating its revenue requirement for approval of tariffs by the PUC. A PUC staff report, prepared with the assistance of US regulatory consultants proposed to disallow the advisory fees as an expense on the grounds that GT&T provided no record of services performed by ATN, no invoices and without any arms length dealings. The PUC staff report indicates that under FCC practice such an advisory fee would be subject to very close scrutiny and, unless there was evidence of the costs incurred by ATN in providing such services, the entire fee would likely be disallowed. The PUC report cites the relevant FCC regulations. Another consultant's report argues that the advisory fee should be allowed for ratemaking purposes, but without any reference to FCC practice. For a variety of reasons, regulatory treatment of the advisory has never been conclusively settled.

It has been suggested that the advisory fees may have been a mechanism intended to increase cash flows from GT&T to ATN, in order to permit ATN to finance its acquisition of GT&T, rather than a mechanism intended to compensate ATN for substantial advisory services. Indeed, the advisory fees have provided a major revenue stream from GT&T to ATN, far more important than dividends, which were not paid by GT&T to either ATN or the Government of Guyana, until very recently. Accordingly, there has been great concern about the treatment of the advisory fees for the purposes rate base/rate of return regulation and for other reasons, including the calculation of taxes payable by GT&T (a tax assessment is currently under litigation).

Other aspects of rate base/rate of return regulation have also been problematic, and subject to significant disagreements and litigation between GT&T and the PUC. These aspects include the treatment of audiotext revenues, goodwill, valuation of GT&T's assets due to devaluation of the Guyana currency, and depreciation rates.

In summary, the process of rate base/rate of return regulation of GT&T has been very problematic.

Finally, with respect to price regulation, it appears that the PUC has taken steps to regulate the rates of cellular operators, whether or not they are dominant. This is different from the situation in many markets, where competitive cellular rates are unregulated. However, it is early in the days of cellular competition, and some refinement of the approaches to price regulation may be expected.

Options for Reform

Preferred Option (A)

It is proposed that the following approaches to price regulation be adopted. These are consistent with best practices in a growing number of countries.

- **Rate rebalancing** – Should be implemented as soon as possible, to raise the level of local rates to real economic costs. This reform will provide a financial incentive to GT&T, and to other service providers that may be licensed in the future, to expand services to all consumers and businesses that will pay the costs of such expansion.

  It is proposed that a Rate-Rebalancing Plan be developed as part of the National Telecommunications Policy. The purpose of this plan would align local rates more closely to costs, taking into account benchmark rates for similar countries.

  The work in developing the Rate Rebalancing Plan may be conducted in co-operation with other regional regulatory authorities, such as ECTA. This would permit the development or estimation of reasonable 'benchmark' rates for the economic costs of an efficent operator providing services to the region. Such rates may provide a reasonable proxy for local rates in Guyana, and a good starting point for rebalancing.

- **Introduce Incentive Regulation** – GT&T's current rate-base / rate of return form of regulation should be replaced with a form of incentive regulation. This step should be taken in conjunction with rate rebalancing and the introduction of competition.

  As indicated earlier in this section of the Paper, rate base / rate of return regulation of GT&T has been problematic. It is a difficult task for regulators, in the best of circumstances to design a rate-base/rate of return method that sends proper market incentives to regulated companies. Most countries have abandoned this form of regulation, and it is proposed that the new Guyana National Telecommunications Policy should do the same.

  Under incentive regulation, GT&T's initial rates should be set at a level that is reasonably cost based, taking into account benchmark rates in comparable countries. Once these rates are set, GT&T should be permitted to adjust its prices annually in accordance with a 'price cap formula'.

  The price cap formula will allow GT&T to increase rates to keep pace with inflation. The price cap formula will typically also include an X factor, to reduce costs annually in line with expected industry productivity improvements. If GT&T is successful in increasing its revenues, or reducing its costs, it should keep the resulting profits. If GT&T not successful in doing so, consumers will be protected, because prices may not increase above the 'price cap'. GT&T would have a strong incentive to operate efficiently and to grow its business revenues. It would not have any incentive to increase its costs, since increased costs could not generally be recovered through rate increases.

- **Deregulation of Competitive Rates** - Price regulation will only apply in markets where there is a dominant operator. Only the prices of the dominant operator in a market will be regulated. Prices of new entrants and other non-dominant operators will not be regulated. As soon as sufficient competition develops in a market that an operator becomes non-dominant, its prices will be deregulated.

- **Other Consumer Protection** – Rules to ensure consumer protection will generally apply to dominant operators. Some basic provisions to ensure consumer protection will also apply to other operators that obtain an individual licence (see discussion under Licensing Policy).

Implications

The implications of this option are generally addressed under the heading Improving Sector Performance.

6. Universal Access

Proposed Objectives

It is proposed that the National Telecommunications Policy should include initiatives to increase the level of access to telecommunications services to all citizens of Guyana. This means that those citizens who live in remote areas or do not have the economic means to subscribe to individual telecommunications services should have a reasonable means of access to shared public telecommunications facilities.

In Guyana, and countries with a similar level of economic development, it is not reasonable to expect that penetration of individual access lines will ever approach the high levels of OECD countries. Accordingly, it should be a major policy thrust of the Government to bring access to 'shared' telecommunications services to a large proportion of the unserved population. Shared access facilities should include not only public pay telephones, but shared access to the Internet and other advanced telecommunications services. Such access can be provided, for example through public 'telecentres' located in schools or other public places.

The challenge of financing expansion of such shared access services, which will often be uneconomic, is addressed under the title, Options for Reform, below.

Current Situation

As indicated in Annex 1, Guyana currently has high levels of teledensity for individual line services, relative to its level of economic development. However, Guyana's level of 'public teledensity' is not high.

As a result, it appears that a small number of people in the middle and upper income levels of Guyana enjoy access to telecommunications services, including telephony and the Internet. However, there appear to be are large communities and groups of Guyanese citizens in the country's interior, as well as on the coastal plain, who have no real access to modern telecommunications. In the parlance of telecommunications and development, these citizens are often described as being on the wrong side of the 'digital divide'. It should be the policy of the Government to bridge this divide.

Options for Reform

The Options for extending Universal Access are essentially those discussed earlier in this paper under the heading Improving Sector Performance. These options are:

Option A - Imposition of Mandatory Network Expansion Obligations on GT&T

Option B - Establishment of Access Deficit Charges

Option C - Government or international development funding of network expansion by GT&T

Option D (Preferred Option) - Market-based Reforms, including

- Rate rebalancing
- Open all markets to competition in an orderly fashion
- Introduce Incentive Regulation
- Establish a Universal Access Program

The main aspects of the Universal Access Program, which is a key element of this option are described below:

Universal Access Program – The purpose of this program is to expand the provision of telephone and Internet access to non-economic areas and low income subscribers.

Based on the very successful experience of Peru, Chile and other countries, it is proposed that this Universal Access Program would be funded through a Universal Access Fund (UAF). Revenues to the UAF would be contributed by all licensed telecommunications service providers, in proportion to their gross revenues from licensed services, net of intercarrier payments (e.g. for interconnection charges).

Additional revenues would be sought for the UAF from other sources, particularly international financial institutions and donors. There has been increasing interest in funding this type of UAF on the part of The World Bank and other international and bilateral agencies. Such funds are seen as an effective means to provide efficient and effective subsidies to increase access to the 'Global Information Infrastructure', to foster economic development and to reduce poverty.

As previously indicated, payments out of the UAF would be based on a competitive bidding process. Service providers, including GT&T could bid to receive a UAF subsidy to extend networks and provide access services, such as community telecentres and public payphones, to unserved areas, such as those in the interior. A variety of technologies could be used to build such networks, including VSATs and Wireless Local Loop services. The bidder with the lowest subsidy requirement would receive the subsidy, conditional upon meeting its service expansion commitments.

Implications

Details and implications of these options are discussed in the section on Improving Sector Performance. For the reasons set out there, none of options A, B or C are likely to be effective in promoting universal access in Guyana today. However, a number of the measures included under the preferred option D will promote universal access.

From the perspective of universal access, the most negative measure included in this option is rate rebalancing. However, as indicated in Annex 1, Guyana currently has relatively high teledensity levels given its level of economic development. When this factor is combined with the relatively large waiting list, it is unlikely that rate rebalancing would drive basic teledensity levels below levels for comparable countries. In fact, rate rebalancing and competition should increase teledensity for individual line services.

As Annex 1 also illustrates, however, Guyana's level of 'public teledensity' is not high. It is understood that a significant percentage of the public pay phone usage in the country is for international calls that are billed collect or billed to calling cards.

Accordingly, if the Government's policy is to extend telephone and Internet access to unserved citizens, there must be a significant new initiative to establish a Universal Access Program, such as the one described in the preferred option.

7. Interconnection

Proposed Objectives

The objective of interconnection policy should be to provide a clear, transparent and fair basis on which existing and new operators and service providers interconnect their networks.

An effective interconnection policy should promote the development of a 'network of networks' within Guyana and internationally, allowing communication between subscribers of all networks on a seamless basis. Such an interconnection policy should permit new entrants to access customers on the networks of incumbent operators, and vice-versa, on reasonable cost-based terms.

The policy should benefit both the incumbent operator and new entrants by providing wider connectivity for their customers, stimulating overall national telecommunications demand, and creating new sources of revenues for all players in the market.

Current Situation

There is not a clear or detailed regulatory approach to interconnection today. This is not surprising, given the early stage of the process to introduce competitive telecom services in Guyana.

The lack of clear interconnection rules has been cited as a reason for the lack of competition in the cellular market. While an interconnection order was issued by the PUC earlier this year has, it has been subject to litigation, and there is some uncertainty about its current status. The existing PUC decision on interconnection (Decisions 4 of 1997) does not cover many of the issues normally found in the regulatory framework for interconnection.

The establishment of clear rules for interconnection is a pre-requisite for the development of effective competition, not only in the cellular market, but also in most other telecommunications markets in Guyana.

Options for Reform

Preferred Option (A)

As a preferred option, it is proposed that a clear set of guidelines for interconnection be drafted in the form of a regulation. These guidelines should be prepared in consultation with the industry and

other interested parties. The guidelines would provide a framework for negotiations of specific interconnection agreements between operators.

It is proposed that the interconnection regulations be based on the following principles. After consultation, based on this Paper, the interconnection principles should be finalized in the National Telecommunications Policy.

The following interconnection principles are proposed:

1. **Interconnection of all Networks Encouraged** - All operators should be encouraged to interconnect with each other, so as to provide seamless end-to-end interconnectivity between all ICT services in Guyana and internationally.

2. **Mandatory Interconnection with Dominant Operators** - Dominant operators should be required to interconnect with all other licensed operators and service providers registered under general authorizations.

3. **Non-Discrimination** - Dominant operators should not discriminate unduly in terms of interconnection between operators, or between the dominant firm's own operations (e.g. cellular operations) and those of interconnecting competitors.

4. **Points of Interconnection** - Dominant operators should establish standard points of interconnection with their networks (often a major tandem exchange). Interconnection should be permitted at any other technically feasible point, but the requesting operator should pay any additional costs of non-standard interconnection.

5. **Payment of Interconnection Costs** - Interconnection costs should generally be borne by the service provider whose activity causes the costs to be incurred.

6. **Cost-based Interconnection Charges** - Over the longer run, interconnection charges should be cost based. However, as an interim measure, rates may be set by the regulator based on benchmark rates in other countries.

7. **Unbundling** – Charges for interconnection should be unbundled, so that interconnecting operators only pay for the services or facilities they require. Essential facilities, including local loops, shall be provided on an unbundled basis.

8. **Reference Interconnection Offer** - GT&T, as the major network operator in Guyana, should prepare a Reference Interconnection Offer (RIO) in accordance with the practice in many countries. The RIO should set out standard terms and conditions for interconnection with GT&T's network, based on the rules set out in the interconnection regime.

9. **Approval and Publication of Interconnection Agreements** – All interconnection agreements entered into with dominant operators would be subject to approval by the regulator, to ensure conformity with the regulations. Such agreements would be publicly available, subject to orders by the regulator to exempt from disclosure schedules or other information the release of which would result in competitive or other demonstrable harm to the parties.

10. **Interim Interconnection Agreements** - Pending completion of the interconnection regulation and publication of the RIO, GT&T should be encouraged to interconnect with cellular and other licensed operators, on terms that are mutually negotiated. However, the terms should be subject to review and amendment to conform with the interconnection regulations, once they are implemented.

11. **Dispute Resolution** – Interconnection disputes between operators should be resolved by the regulator, in a timely, independent and fair manner. The regulator, or the parties, may refer technical and financial aspects of interconnection to outside experts for mediation and/or arbitration.

Key Implications:

The preferred option is generally consistent with good interconnection practices throughout the world. It also complies with the interconnection principles established in the regulation reference paper adopted as part of the 1997 WTO Agreement on Basic Telecommunications (The *Fourth Protocol to the GATS Agreement*).

This option will take somewhat longer to implement than Option B, namely leaving interconnection agreements to be negotiated among operators. However, experience around the world has demonstrated that regulatory guidance is required to ensure that efficient interconnection agreements are reached on a timely basis.

Option B

Under this option, operators and service providers would be encouraged to freely negotiate their own interconnection agreements. Little or no explicit guidance would be provided to operators on the terms and conditions of interconnection agreements.

Under this option, operators that failed to reach a mutually acceptable interconnection agreement within a reasonable time could return to the regulator, or an independent mediator/arbitrator for assistance in resolving any outstanding disputes.

Under this option, the power of the regulator to approve interconnection agreements would normally be retained, as would the duty to disclose such agreements.

Key Implications:

The major advantage of this option is that it can be implemented immediately. However, experience in various countries has shown that this advantage is illusory. It often takes just as long, or longer for parties to negotiate an interconnection agreement. Moreover, given the inequality in their bargaining power, the dominant operator normally has no incentive to enter into an interconnection agreement that will allow competitors to compete effectively.

In some cases, new entrants have had to agree to manifestly one-sided interconnection agreements, as the only basis on which they could enter the market. This has deprived the market of the benefits of effective competition.

Finally, this option can be unfair to dominant operators, who may agree to a series of trade-offs with interconnecting operators, only to have a finely negotiated balance overturned by the regulator on review.

This option was frequently used by regulators in the early days of telecommunications competition, before the development of much real regulatory 'know-how' on interconnection. However, the option is considered a less desirable one by most telecommunications experts and policy makers around the world today.

Annex 1

Office of the Prime Minister and Minister of Public Works and Communications
Project Execution Unit for Modernization of the Telecommunications Sector

Consultation Paper on Issues and Options for Reform of the Telecommunications Sector

Annex 1

Teledensity in Guyana

Summary

- This Annex provides a world-wide and regional comparison of Guyana's teledensity[6] levels compared to countries with a similar level of economic development.
- Both a world-wide comparison and a more specific regional comparison suggest that Guyana's basic teledensity level is relatively high.
- The Annex also examines Guyana's 'public teledensity' level. The ITU defines public teledensity as the number of public telephones per 1000 inhabitants. Based on available data, it appears that Guyana's public teledensity level is average for comparable income countries.
- These conclusions relate only to the relative size of the fixed telecommunications network. Other performance indicators, including quality of service, waiting lists, price of service, and network provision in rural and other traditionally-underserved areas are not covered in this analysis.

Basis of Comparison

[6] The ITU defines teledensity as the number of main lines divided by 100 inhabitants.

- The most important determinant of teledensity is economic development. There is a strong relationship between national teledensity and the nation's per capita income. Figure 1 below illustrates the relationship between teledensity and per capita income[7] for all countries in the world.

- The strong relationship between teledensity and per capita income provides an explanation for the major differences in teledensity in different countries. This relationship has been recognized by researchers and analysts, including at the ITU and the World Bank. The relationship holds true at all levels of per capita income.

Guyana and income-comparable countries around the world

- According to the World Bank, Guyana's per capita gross national income ("GNI") for 1999 was U.S. $760. In order to study Guyana's teledensity performance on a global basis, we have determined that the principal comparison parameter be GNI per capita and that the appropriate comparison range would be countries around the world with GNI per capita of between $400 and $1,600 in 1999. The lower range is approximately half of Guyana's GNI per capita, while the upper range is approximately double that of Guyana's GNI per capita. According to the World Bank, there are about 52 countries, including Guyana, within this range.

- From this gross sample of countries we exclude 13 countries of the former Soviet Union or Eastern Block[8]. These countries generally have significantly higher teledensities than the rest of the sample due to their historical heavy investment and continuing subsidisation of infrastructure, including telecommunications. It is also a holdover from the previously higher economic classification of these countries. After excluding these 13 countries, we refer to the remaining 39 countries as the World income-comparable group.

- As shown in Figure 2, Guyana's teledensity performance relative to the World income-comparable group is very good. In fact, based on a simple regression analysis, Guyana's teledensity appears to be about double what may be expected given its GNI per capita.

- Within the World income-comparable group of 39 countries, only six have a higher teledensity than Guyana. Three of these countries, Maldives, Cape Verde and Tonga, are small island states that have less than half-a-million people and high population densities. The other three countries are China, Syria and Ecuador.

- With respect to public teledensity[9], Figure 3 plots public teledensity and GNI per capita for the World income-comparable group of countries. The relationship between public teledensity and GNI per capita appears to be less strong than that of teledensity and GNI per capita. Nevertheless, based on a simple regression analysis, Guyana's relative performance is average.

Guyana and income-comparable countries in the Americas

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[7] The World Bank uses Gross National Income (GNI) per capita as its preferred indicator for the classification of economies. For the most recently available data year, 1999, the classification of economies was in current US dollars: **low income**, less than $755; **lower-middle-income**, between $756 and $2,995; **upper-middle-income**, between $2,996 and $9,265; **high income**, more than $9,266.

[8] These countries include Moldova, Azerbaijan, Armenia, Georgia, Turkmenistan, Uzbekistan, Ukraine, Albania, Yugoslavia, Bosnia & Herzegovina, Kazakhstan, Bulgaria, and Romania.

[9] The ITU defines public teledensity as the number of public telephones per 1000 inhabitants.

- Including Guyana, there are eight countries of the Americas in the World income-comparable group. In order to study Guyana's teledensity performance on a regional basis we examine these eight countries, which we refer to as the Americas income-comparable group, in Table 1[10] below.

Table 1: Guyana and the Americas income-comparable group of countries

Country	GNI / Capita (US$)	Population (m)	Urban Population (%)	Main Lines (k)	Teledensity (main line / 100 pop.)	Public Telephones (k)	Public Teledensity (public phones / 1000 pop)
Nicaragua	410	4.9	56	150	3.04	2.36	0.48
Haiti	460	8.1	35	70	0.87	0.02	0.00
Guyana	760	0.9	38	64	7.49	0.43	0.50
Honduras	760	6.3	52	279	4.42	3.11	0.49
Bolivia	990	8.1	62	503	6.17	11.42	1.40
Cuba	1,329	11.2	75	434	3.89	11.85	1.06
Ecuador	1,360	12.4	64	1,130	9.10	3.31	0.27
Paraguay	1,560	5.4	55	297	5.54	1.93	0.36

- Note that in the Americas income-comparable group we have not included a number of countries of the Americas. The principal reason for this exclusion is that they have a GNI per capita significantly higher than that of Guyana. For instance, we have excluded lower-middle-income countries of the Americas with GNI per capita above $1,600, including Belize, Colombia, Dominican Republic, El Salvador, Jamaica, Peru, St. Vincent and Suriname. We have also excluded upper-middle-income[11], and high income[12] countries of the Americas.

- In terms of teledensity, Guyana compares very well to the Americas income-comparable group of countries. Only Ecuador, with a GNI per capita 75% higher than that of Guyana, has a higher teledensity than the 7.49 of Guyana. Guyana has the same GNI per capita as Honduras, yet it has a teledensity that is 70% higher.

    - Guyana' good teledensity performance is in spite of two factors that would otherwise be expected to make it more expensive to install and maintain Guyana's network. One

[10] All data are for 1999. Telecommunications-specific data is from the ITU, the remaining data is from the World Bank.

[11] Antigua and Barbuda, Argentina, Brazil, Chile, Dominica, Grenada, Guadeloupe, Mexico, Panama, Puerto Rico, St. Kitts and Nevis, St. Lucia, Trinidad & Tobago, Uruguay and Venezuela.

[12] These countries include Aruba, Bahamas, Bermuda, Canada, French Guyana, Martinique, Netherlands Antilles, United States and Virgin Islands (U.S.).

factor is overall population size; the other is percentage of urban population. All of the Americas income-comparable group countries have a bigger population than Guyana. Most also have a higher percentage of urban population than Guyana.

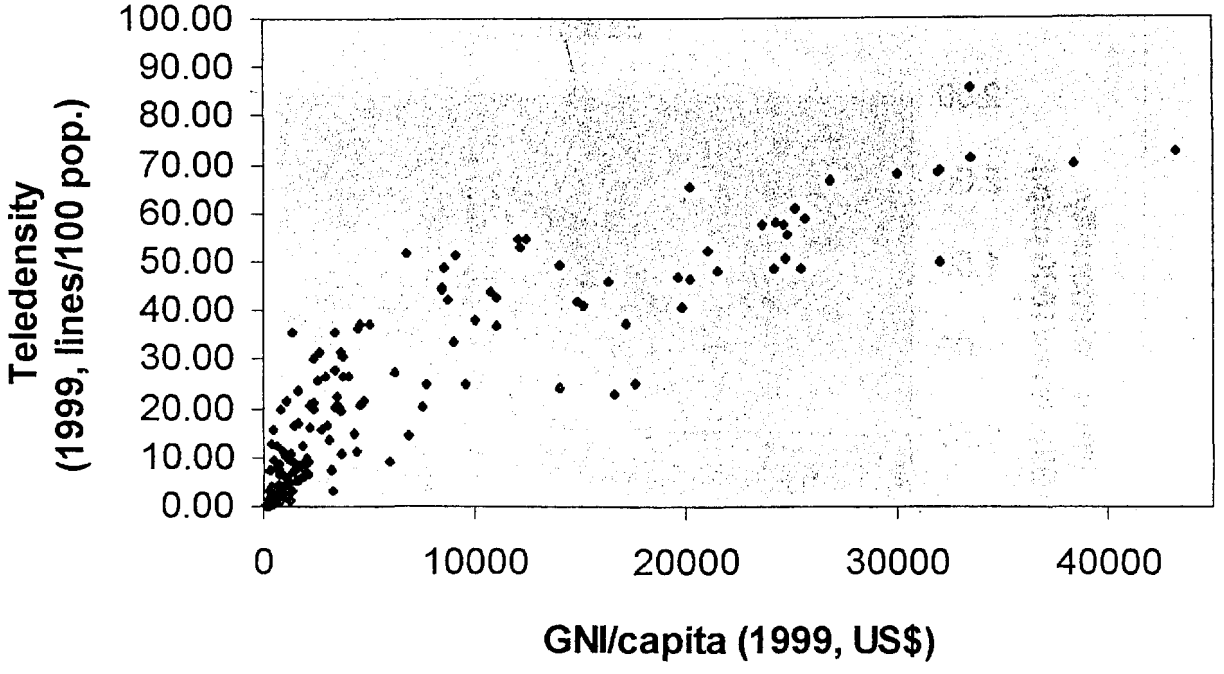
- Overall population size may be a determinant of teledensity, given that telecommunications networks are generally thought to be subject to economies of scale. These economies mean that, on a per line basis, it will be relatively cheaper to install larger networks than smaller networks. Hence, holding everything else equal, countries with larger populations will have relatively higher teledensity than those with smaller populations.

- The percentage of a country's population that lives in urban areas may also be determinant of teledensity. Local telecommunications networks are subject to economies of density. That is, the higher the subscriber density, the lower the per line cost. Hence, holding everything else equal, countries with relatively larger urban populations will have relatively higher teledensity than those with smaller urban populations.

- In terms of public teledensity, Guyana is average compared to the Americas income-comparable group of countries. Guyana's public teledensity of 0.50 is around the average of the group. Guyana scores higher than 5 countries, but significantly lower than the two leaders, Cuba and Bolivia.

Figure 1: Teledensity vs. GNI/capita

(All Countries)



Fugure 2: Teledensity vs. GNI/capita

(Countries with GNI/capita of US$400-1600, excluding ex-Soviet Union and Eastern Block)

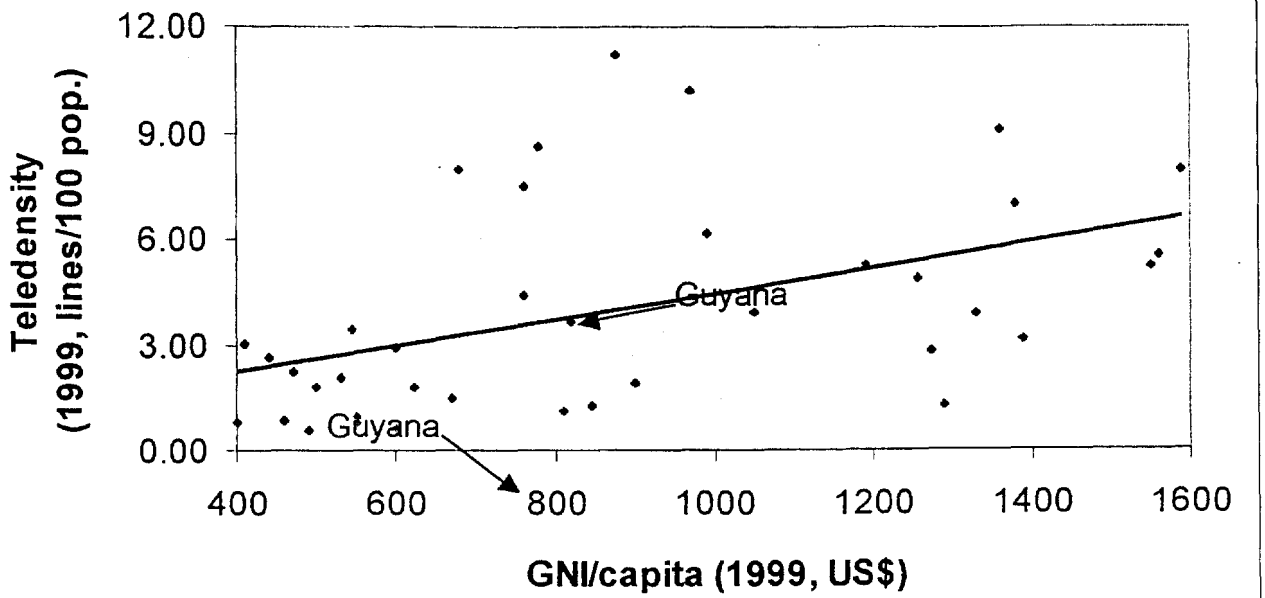
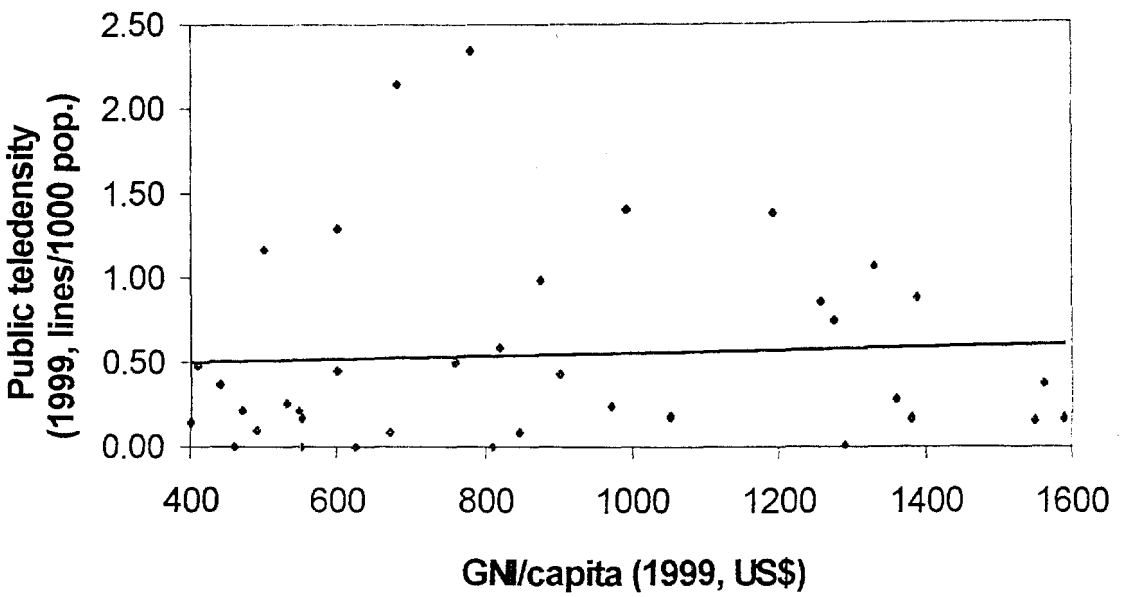


Figure 3: Public Teledensity vs. GNI/capita

(Countries with GNI/capita of US$400-1600, excluding ex-Soviet Union and Eastern Block)



Annex 2

Office of the Prime Minister and Minister of Public Works and Communications
Project Execution Unit for Modernization of the Telecommunications Sector

Consultation Paper on Issues and Options for Reform of the Telecommunications Sector

Annex 2

A Comparison of Local Telephone Rates in Guyana and the Americas Region

Introduction

- It is difficult to make accurate comparisons between local telecommunications rates in different countries. Pricing structures and boundaries of local areas vary significantly from country to country. However, it is useful to make some comparisons, in order to provide a sense of local rate levels in Guyana. Please note that the data set out in this Annex is subject to the comments in the text.

Comparison of customers with similar local usage

- Table 1 sets out information from a survey of Americas region telephone rates conducted periodically by the US-based Alexis de Tocqueville Institution. A description of the survey methodology and of the Alexis de Tocqueville Instititution can be found on that organization's web sites, at www.infoamericas.org and www.adti.net.

- The survey results are extracted here for illustrative purposes. The survey uses a 'basket' of services approach to compare the prices of different telecommunications services in different countries of the Americas region. Only the local services comparison is included in this Annex. Other comparisons can be found on the organization's web site.

- Unfortunately, Guyana has not been included in recent versions of the organization's survey. However the results of its 1998 survey give a general picture of the comparative level of Guyana's local rates.

- The following table sets out the comparative monthly bills for a telephone customer with 240 minutes of local calls, in 20 countries of the Americas region.

Table 1

Monthly Customer Bill for 240 minutes of Local Calls (in US dollars)

Country	Cost ($US)	Rank
Argentina	40.52	20
Bolivia	22.85	18
Brazil	12.43	13
Chile	32.14	19
Costa Rica	4.30	6
Dominican Republic	5.67	7
Ecuador	3.41	2
El Salvador	10.28	11
Guyana	1.88	1
Haiti	4.13	4
Jamaica	3.76	3
Mexico	18.52	16
Nicaragua	7.40	8
Panama	7.40	8
Paraguay	3.84	4
Peru	19.37	17
Trinidad and Tobago	14.57	14
United States	18.42	15
Uruguay	10.95	12
Venezuela	8.81	10

Source: Alexis de Tocqueville Institution, www.infoamericas.org

- As noted in the introduction, survey data such as that set out in Table 1 does not provide a comprehensive or truly accurate comparison of local rates. There are many reasons for this. The size of local exchange areas varies considerably from country to country. Thus calls similar to those considered to be 'local' calls in some countries would be considered 'long distance' calls in other areas. Pricing structures also vary from country to country, for example between fixed and usage-sensitive rates, making comparisons difficult.

Comparison of monthly subscription rates

- In addition to usage-based rates, telephone operators in most countries charge a fixed, monthly subscription rate. Table 2 sets out monthly subscription rates in US dollars for Guyana and several other Caribbean countries.

Table 2

Monthly Subscription Rates (in US dollars)

Country	Residential	Business
Antigua	30.00	60.00
Barbados	16.10	47.00
Belize	4.00	10.00
Cuba	6.25	9.95
Curacao	7.78	7.78
Guyana	1.40	6.00
Jamaica	4.98	11.68
St Lucia	8.98	10.09
Trinidad and Tobago	4.64	22.78

Source: GT&T, 2000

- Again, it should be noted that survey data such as these do not give a comprehensive or truly accurate picture of a local customer's costs. Pricing structures and operator pricing strategies vary from country to country. What one operator recovers through monthly subscription rates, another may recover through local usage, long distance or international rates.